BROOKHAVEN
NATIONAL LABORATORY

Work Permit # SS2004-133
Work Order # ____
Job# ____ Activity# ____

*. Work requester fills out this section. ☐ Standing Work Permit

equester: P. KROON	Date: 7/30/04	Ext.: 5114	Dept/Div/Group: P0 / PHENIX
Other Contact person (if different from requester):	SAL MARINO		Ext.: 3704
Work Control Coordinator: P. KROON		Start Date: 8/4/04	Est. End Date: 8/11/04
Brief Description of Work: REPAIR FEM INSIDE SOUTH MUON MAGNET			
Building: 1008	Room: IR	Equipment: N/A	Service Provider: PHENIX

2. WCC, Requester/Designee, Service Provider, and ES&H (as necessary) fill out this section or attach analysis

ES&H ANALYSIS

Radiation Concerns	☒ None	☐ Activation	☐ Airborne	☐ Contamination	☐ Radiation ☐ Other
☐ Special nuclear materials involved, notify Isotope Special Materials Group			☐ Fissionable materials involved, notify Laboratory Criticality Officer		
Safety Concerns	☐ None	☐ Ergonomics	☐ Transport of Haz/Rad Material		
☐ Adding/Removing Walls or Roofs	☒ Confined Space* 2A	☐ Explosives	☐ Lead*	☐ Penetrating Fire Walls	
	☐ Corrosive	☐ Flammable	☐ Magnetic Field*	☐ Pressurized Systems	
☐ Asbestos*	☐ Cryogenic	☐ Fumes/Mist/Dust*	☐ Material Handling	☐ Rigging/Critical Lift	
☐ Beryllium*	☐ Electrical	☐ Heat/Cold Stress	☐ Noise*	☐ Toxic Materials*	
☐ Biohazard*	☐ Elevated Work*	☐ Hydraulic	☐ Non-ionizing Radiation*	☐ Vacuum	
☐ Chemicals*	☐ Excavation	☐ Lasers*	☐ Oxygen Deficiency*	☐ Other	
* Does this work require medical clearance or surveillance from the Occupational Medicine Clinic? ☐ Yes ☒ No					
Environmental Concerns		☒ None	☐ Work impacts Environmental Permit No.		
☐ Atmospheric Discharges (rad/non-rad)		☐ Land Use	☐ Soil activation/contamination	☐ Waste-Mixed	
☐ Chemical or Rad Material Storage or Use		☐ Liquid Discharges	☐ Waste-Clean	☐ Waste-Radioactive	
☐ Cesspools (UIC)		☐ Oil/PCB Management	☐ Waste-Hazardous	☐ Waste-Regulated Medical	
☐ High water/power consumption		☐ Spill potential	☐ Waste-Industrial	☐ Underground Duct/Piping	
Waste disposition by:				☐ Other	
Pollution Prevention (P2)/Waste Minimization Opportunity:		☒ None ☐ Yes			
FACILITY CONCERNS	☒ None				
☐ Access/Egress Limitations	☐ Electrical Noise	☐ Potential to Cause a False Alarm		☐ Vibrations	
	☐ Impacts Facility Use Agreement		☐ Temperature Change	☐ Other	
☐ Configuration Control	☐ Maintenance Work on Ventilation Systems		☐ Utility Interruptions		

WORK CONTROLS

Work Practices

☐ None	☐ Exhaust Ventilation	☒ Lockout/Tagout MAGNET	☐ Spill Containment	☐ Security (see Instruction Sheet)
☒ Back-up Person/Watch	☐ HP Coverage	☐ Posting/Warning Signs	☐ Time Limitation	☐ Other
☐ Barricades	☐ IH Survey	☐ Scaffolding-requires inspection	☐ Warning Alarm (i.e. "high level")	

Protective Equipment

☒ None	☐ Ear Plugs	☐ Gloves	☐ Lab Coat	☐ Safety Glasses	
☐ Coveralls	☐ Ear Muffs	☐ Goggles	☐ Respirator	☐ Safety Harness	
☐ Disposable Clothing	☐ Face Shield	☐ Hard Hat	☐ Shoe Covers	☐ Safety Shoes	☐ Other

Permits Required (Permits must be valid when job is scheduled.)

☒ None	☐ Cutting/Welding	☐ Impair Fire Protection Systems
☐ Concrete/Masonry Penetration	☐ Digging/Core Drilling	☐ Rad Work Permit-RWP No
☐ Confined Space Entry	☐ Electrical Working Hot	☐ Other

Dosimetry/Monitoring

☒ None	☐ Heat Stress Monitor	☐ Real Time Monitor	☐ TLD
☐ Air Effluent	☐ Noise Survey/Dosimeter	☐ Self-reading Pencil Dosimeter	☐ Waste Characterization
☐ Ground Water	☐ O_2/Combustible Gas	☐ Self-reading Digital Dosimeter	☐ Other
☐ Liquid Effluent	☐ Passive Vapor Monitor	☐ Sorbent Tube/Filter Pump	

Training Requirements (List below specific training requirements)

CONFINED SPACE

Based on analysis above, the Walkdown Team determines the risk, complexity, and coordination ratings below:				**If using the permit when all hazard ratings are low, only the following need to sign: (Although allowed, there is no need to use back of form)**	
ES&H Risk Level:	☐ Low	☒ Moderate	☐ High	WCC:	Date:
Complexity Level:	☐ Low	☒ Moderate	☐ High	Service Provider:	Date:
Work Coordination:	☐ Low	☒ Moderate	☐ High	Authorization to start	Date:
				(Departmental Sup/WCC/Designee)	

3. Both work requester and service provider contribute to work plan (use attachments for detailed plans)

Work Plan (procedures, timing, equipment, and personnel availability need to be addressed):

— SEE ATTACHED —

Special Working Conditions Required:

Operational Limits Imposed: NONE

Post Work Testing Required: No

Job Safety Analysis Required: ☐ Yes ☒ No | Walkdown Required: ☒ Yes ☐ No

Reviewed by: Primary Reviewer will determine the size of the review team and the other signatures required based on hazards and job complexity. Primary Reviewer signature means that the hazards and risks that could impact ES&H have been identified and will be controlled according to BNL requirements.

Title	Name (print)	Signature	Life #	Date
Primary Reviewer	P. Cerasiello	P. Cer	21868	7/30/04
ES&H Professional	[illegible]	[illegible]	13163	7-30-2004
Other	C. Berben	C. Berben	15245	7/30/2004
Other				
Work Control Coordinator	P. Kroon	P. Kroon	17500	7/30/04
Service Provider				
	Review Done: ☒ in series	☐ team		

4. Job site personnel fill out this section.

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements (including any attachments).

Job Supervisor: Sal Marino		Contractor Supervisor:	
Workers:	Life#:	Workers :	Life#:
[illegible]	U8234		167
SAL MARINO	15767		
	X7423		

Workers are encouraged to provide feedback on ES&H concerns or on ideas for improved job work flow. Use feedback form or space below.

5. Departmental Job Supervisor, Work Control Coordinator/Designee

Conditions are appropriate to start work: (Permit has been reviewed, work controls are in place and site is ready for job.)

Name: P. KROON	Signature: P. Kroon	Life#: 17500	Date: 8/4/04

6. Departmental Job Supervisor, Work Requester/Designee determines if Post Job Review is required. ☐ Yes ☒ No

Post Job Review (Fill in names of reviewers)			
Name:	Signature:	Life#:	Date:
Name:	Signature:	Life#:	Date:

7. Worker provides feedback.

Worker Feedback (use attached sheets as necessary)

a) WCM/WCC: Is any feedback required? ☐ Yes ☒ No

b) Workers: Are there better methods or safer ways to perform this job in the future? ☐ Yes ☒ No

8. Closeout: Work Control Coordinator (authorizing dept.) checks quality of completed permit and ensures the work site is left in an acceptable condition. (WCC can delegate clean up of work area to work supervisor)

Name: P. KROON	Signature: P. Kroon	Life#: 17500	Date: 8/23/04

Comments:

Work Plan Attachment **WP# SS2004-133**

Repair FEM inside South Muon Magnet in PHENIX IR, Bldg. 1008.

Confined space entry - Class 2A: Enter the South Muon Magnet (MMS) in the PHENIX experimental hall at RHIC (bldg. 1008), and repair electronics module (FEM card). The detector chambers inside the MMS contain an inert gas (~~argon~~ N_2). Hazardous Atmosphere Testing is not required. The hazards are that entry is via ladder through an opening created by removal of the east vertical lampshade, about 11 feet above track level, and the magnet has a sloping floor (35 to 45 deg. From vertical) presenting the danger of a fall (about 6 feet elevation change down sloping floor). Though structural elements of the detector are within reach for support, further mitigation is provided by installing "steps" on the sloping floor, and adherence to the "two person" rule. When the magnet is occupied, two people must be present and within talking distance at all times.

This work is to be done by fully trained and experienced PHENIX personnel, under the supervision of Sal Marino. A properly executed and signed Confined Space Entry (CSE) Certification is required prior to entry.

Procedure

LOTO the power to the magnet coil at the power supply in 1008B.(Pearson) ✓ 8/4/04 PJK verbal from CP. E-mail to follow.

Verify that ~~only argon~~ N_2 gas is flowing to the chambers. (Biggs) ✓ 8/4/04 PJK - verbal from CB.

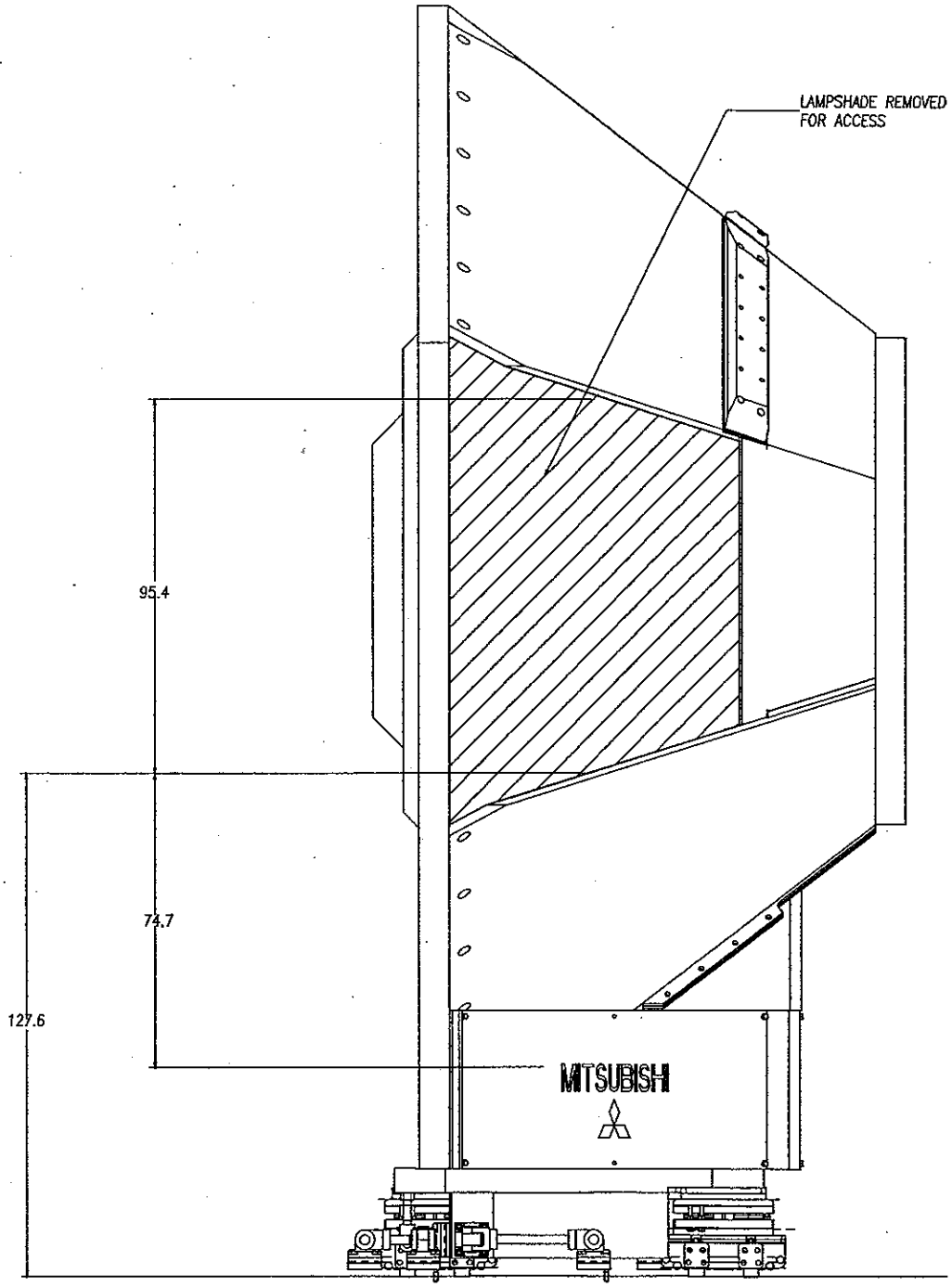
Secure a ladder to the east side of the MMS. (Marino)

Enter the magnet and install the pre-fabricated steps on the lower east lampshade panel, working from the bottom up. If access is required to any west-side electronics, the steps up the sloping west side will also be installed. Work is limited to the bottom three sectors of stations two and three and the lower crates of the vertical sectors that may be easily reached from the steps. (Marino, Mutr experts)

Enter the magnet and remove/repair/replace FEM components. If one person enters then a second will provide back-up at the entry hatch. (MuTr experts)

Once work is complete, remove the internal steps, sweep the magnet interior for tools and personnel and remove the external access ladder. (Marino, MuTr experts)

Remove LOTO on magnet power supply. (Pearson)


LAMPSHADE REMOVED
FOR ACCESS
95.4
74.7
127.6
MITSUBISHI

BROOKHAVEN
NATIONAL LABORATORY

C-A CONFINED SPACE ENTRY CERTIFICATION

Location: PHENIX SOUTH MUON MAGNET		Date: 8/13/04
Building: 1008	Area/Location/Room: IR	
	Classification from C-A Inventory List: N/A	
Supervisor/Designee: SAL MARINO		Life #: 15767

PRE-ENTRY QUESTIONS

For each item, check "yes" or "no": If no, consult Supervisor	N/A	YES
Is entry essential to perform work?	☐	☑
Have all employees been trained in confined space entry?	☐	☑
Are conditions safe to remove utility-hole cover?	☑	☐
Has opening been guarded?	☑	☐
Is monitoring equipment calibrated?	☑	☐
Has monitoring been performed and recorded below?*	☑	☐
Is GFCI used, if outside or in wet conditions?	☑	☐
Is ventilation blown into bottom of space? (If required)	☑	☐
Are employees instructed to evacuate upon hazard detection?	☐	☑
Have all workers reviewed these entry requirements?	☐	☑
Radiation: If present, RWP may be required – review work with ESH Coordinator and/or RCD personnel. Evaluate hazards and controls.	☑ ☐ Reviewed	

SPACE CLASSIFICATION QUESTIONS

For each item, check box only if "yes"	Class 2A	Class 2B	Class 2C
Engulfment Hazard Present			☐
Entrapment Hazard Present			☐
Electrical Systems:			
• Deenergized	☑		
• Energized and Working Hot			☐
• Energized, but Guarded or not Working Hot	☐		
Mechanical Systems:			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Other Energized Systems: (e.g. steam, sewage)			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Chemical Hazards inherent in space, based upon monitoring, but Controllable by ventilating		☐	
Chemical Hazards inherent in space, based upon monitoring, but not controllable by ventilating			☐
Chemical Sources, introduced into space? (e.g. welding fumes, solvents)			☐
High Temperature/Pressure Hazard? (other than steam utility-holes)			☐

- If ANY box in column 2C is checked, a Confined Space Permit IS required.
- If any box in column 2B is checked, and none in column 2C, a Confined Space Permit IS NOT required BUT continuous monitoring and ventilating ARE required.
- If only boxes in column 2A are checked, no additional requirements apply.

Classification evaluation

CLASSIFICATION	
CLASS: 2A	I have completed the front and back of this Confined Space Entry Certification form and classified this space. If the confined space is classified as a 2C, I will obtain a Confined Space entry permit from the ESH Coordinator. If the space is Class 2B, continuous monitoring and ventilation is required and will be documented on this form.
	Supervisor/Designee: Sal Marino — Life #: 15767 — Date: 8/13/04

C-A CONFINED SPACE ENTRY CERTIFICATION

Meter:	Serial # N/A See WP# SS2004-133	Calibration Date:
Day of Use Sensor Check ☐ Yes ☐ No		
Tested By:		BNL#:

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Pre-Entry **Certification test**	N/A See WP# SS2004-133				
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Supplemental sampling record

CLASS 2B CONFINED SPACE ENTRY CERTIFICATION

For Class2B spaces, Hourly or Periodic monitoring is required.

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Class 2B: Describe Method of Ventilation:

BROOKHAVEN NATIONAL LABORATORY

C-A CONFINED SPACE ENTRY CERTIFICATION

Location: PHENIX SOUTH MUON MAGNET	Date: 8/12/04
Building: 1008	Area/Location/Room: IR
	Classification from C-A Inventory List: N/A
Supervisor/Designee: SAL MARINO	Life #: 15767

PRE-ENTRY QUESTIONS

For each item, check "yes" or "no": If no, consult Supervisor

	N/A	YES
Is entry essential to perform work?	☐	☑
Have all employees been trained in confined space entry?	☐	☑
Are conditions safe to remove utility-hole cover?	☑	☐
Has opening been guarded?	☑	☐
Is monitoring equipment calibrated?	☑	☐
Has monitoring been performed and recorded below?*	☑	☐
Is GFCI used, if outside or in wet conditions?	☑	☐
Is ventilation blown into bottom of space? (If required)	☑	☐
Are employees instructed to evacuate upon hazard detection?	☐	☑
Have all workers reviewed these entry requirements?	☐	☑
Radiation: If present, RWP may be required -- review work with ESH Coordinator and/or RCD personnel. Evaluate hazards and controls.	☑ ☐ Reviewed	

SPACE CLASSIFICATION QUESTIONS

For each item, check box only if "yes"

	Class 2A	Class 2B	Class 2C
Engulfment Hazard Present			☐
Entrapment Hazard Present			☐
Electrical Systems:			
• Deenergized	☑		
• Energized and Working Hot			☐
• Energized, but Guarded or not Working Hot	☐		
Mechanical Systems:			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Other Energized Systems: (e.g. steam, sewage)			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Chemical Hazards inherent in space, based upon monitoring, but Controllable by ventilating		☐	
Chemical Hazards inherent in space, based upon monitoring, but not controllable by ventilating			☐
Chemical Sources, introduced into space? (e.g. welding fumes, solvents)			☐
High Temperature/Pressure Hazard? (other than steam utility-holes)			☐

- If ANY box in column 2C is checked, a Confined Space Permit IS required.
- If any box in column 2B is checked, and none in column 2C, a Confined Space Permit IS NOT required BUT continuous monitoring and ventilating ARE required.
- If only boxes in column 2A are checked, no additional requirements apply.

Classification evaluation

CLASSIFICATION

CLASS: 2A

I have completed the front and back of this Confined Space Entry Certification form and classified this space. If the confined space is classified as a 2C, I will obtain a Confined Space entry permit from the ESH Coordinator. If the space is Class 2B, continuous monitoring and ventilation is required and will be documented on this form.

Supervisor/Designee: Sal Marino Life # 15767 Date: 8/12/04

C-A CONFINED SPACE ENTRY CERTIFICATION

Meter:	Serial #	Calibration Date:
Day of Use Sensor Check ☐ Yes ☐ No N/A See WP# SS2004-133		
Tested By:		BNL#:

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Pre-Entry **Certification test**	N/A See WP# SS2004-133				
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Supplemental sampling record

CLASS 2B CONFINED SPACE ENTRY CERTIFICATION

For Class2B spaces, Hourly or Periodic monitoring is required.

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Class 2B: Describe Method of Ventilation:

BROOKHAVEN
NATIONAL LABORATORY

C-A CONFINED SPACE ENTRY CERTIFICATION

Location: PHENIX SOUTH MUON MAGNET	Date: 8/11/04
Building: 1008	Area/Location/Room: IR
	Classification from C-A Inventory List: N/A
Supervisor/Designee: SAL MARINO	Life #: 15767

PRE-ENTRY QUESTIONS

For each item, check "yes" or "no": If no, consult Supervisor	N/A	YES
Is entry essential to perform work?	☐	☑
Have all employees been trained in confined space entry?	☐	☑
Are conditions safe to remove utility-hole cover?	☑	☐
Has opening been guarded?	☑	☐
Is monitoring equipment calibrated?	☑	☐
Has monitoring been performed and recorded below?*	☑	☐
Is GFCI used, if outside or in wet conditions?	☑	☐
Is ventilation blown into bottom of space? (If required)	☑	☐
Are employees instructed to evacuate upon hazard detection?	☐	☑
Have all workers reviewed these entry requirements?	☐	☑
Radiation: If present, RWP may be required – review work with ESH Coordinator and/or RCD personnel. Evaluate hazards and controls.	☑ ☐ Reviewed	

SPACE CLASSIFICATION QUESTIONS

For each item, check box only if "yes"	Class 2A	Class 2B	Class 2C
Engulfment Hazard Present			☐
Entrapment Hazard Present			☐
Electrical Systems:			
• Deenergized	☑		
• Energized and Working Hot			☐
• Energized, but Guarded or not Working Hot	☐		
Mechanical Systems:			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Other Energized Systems: (e.g. steam, sewage)			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Chemical Hazards inherent in space, based upon monitoring, but Controllable by ventilating		☐	
Chemical Hazards inherent in space, based upon monitoring, but not controllable by ventilating			☐
Chemical Sources, introduced into space? (e.g. welding fumes, solvents)			☐
High Temperature/Pressure Hazard? (other than steam utility-holes)			☐

- If ANY box in column 2C is checked, a Confined Space Permit IS required.
- If any box in column 2B is checked, and none in column 2C, a Confined Space Permit IS NOT required BUT continuous monitoring and ventilating ARE required.
- If only boxes in column 2A are checked, no additional requirements apply.

Classification evaluation

CLASSIFICATION	
CLASS: 2A	I have completed the front and back of this Confined Space Entry Certification form and classified this space. If the confined space is classified as a 2C, I will obtain a Confined Space entry permit from the ESH Coordinator. If the space is Class 2B, continuous monitoring and ventilation is required and will be documented on this form.
	Supervisor/Designee: Sal Marino Life # 15767 Date: 8/11/04

C-A CONFINED SPACE ENTRY CERTIFICATION

Meter:	Serial # N/A See WP# SS2004-133	Calibration Date:
Day of Use Sensor Check ☐ Yes ☐ No		
Tested By:		BNL#:

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Pre-Entry **Certification test**	N/A See WP# SS2004-133				
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Supplemental sampling record

CLASS 2B CONFINED SPACE ENTRY CERTIFICATION

For Class2B spaces, Hourly or Periodic monitoring is required.

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Class 2B: Describe Method of Ventilation:

BROOKHAVEN NATIONAL LABORATORY

C-A CONFINED SPACE ENTRY CERTIFICATION

Location: PHENIX SOUTH MUON MAGNET	Date: 8/10/04
Building: 1008	Area/Location/Room: IR
	Classification from C-A Inventory List: N/A
Supervisor/Designee: SAL MARINO	Life #: 15767

PRE-ENTRY QUESTIONS

For each item, check "yes" or "no": If no, consult Supervisor	N/A	YES
Is entry essential to perform work?	☐	☑
Have all employees been trained in confined space entry?	☐	☑
Are conditions safe to remove utility-hole cover?	☑	☐
Has opening been guarded?	☑	☐
Is monitoring equipment calibrated?	☑	☐
Has monitoring been performed and recorded below?*	☑	☐
Is GFCI used, if outside or in wet conditions?	☑	☐
Is ventilation blown into bottom of space? (If required)	☑	☐
Are employees instructed to evacuate upon hazard detection?	☐	☑
Have all workers reviewed these entry requirements?	☐	☑
Radiation: If present, RWP may be required – review work with ESH Coordinator and/or RCD personnel. Evaluate hazards and controls.	☑ ☐ Reviewed	

SPACE CLASSIFICATION QUESTIONS

For each item, check box only if "yes"	Class 2A	Class 2B	Class 2C
Engulfment Hazard Present			☐
Entrapment Hazard Present			☐
Electrical Systems:			
• Deenergized	☑		
• Energized and Working Hot			☐
• Energized, but Guarded or not Working Hot	☐		
Mechanical Systems:			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Other Energized Systems: (e.g. steam, sewage)			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Chemical Hazards inherent in space, based upon monitoring, but Controllable by ventilating		☐	
Chemical Hazards inherent in space, based upon monitoring, but not controllable by ventilating			☐
Chemical Sources, introduced into space? (e.g. welding fumes, solvents)			☐
High Temperature/Pressure Hazard? (other than steam utility-holes)			☐

- If ANY box in column 2C is checked, a Confined Space Permit IS required.
- If any box in column 2B is checked, and none in column 2C, a Confined Space Permit IS NOT required BUT continuous monitoring and ventilating ARE required.
- If only boxes in column 2A are checked, no additional requirements apply.

Classification evaluation

CLASSIFICATION	
CLASS: 2A	I have completed the front and back of this Confined Space Entry Certification form and classified this space. If the confined space is classified as a 2C, I will obtain a Confined Space entry permit from the ESH Coordinator. If the space is Class 2B, continuous monitoring and ventilation is required and will be documented on this form.
	Supervisor/Designee: Sal Marino Life # 15767 Date: 8/10/04

C-A CONFINED SPACE ENTRY CERTIFICATION

Meter:	Serial # N/A See WP# SS2004-133	Calibration Date:
Day of Use Sensor Check ☐ Yes ☐ No		
Tested By:		BNL#:

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Pre-Entry **Certification test**	N/A See WP# SS2004-133				
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Supplemental sampling record

CLASS 2B CONFINED SPACE ENTRY CERTIFICATION

For Class2B spaces, Hourly or Periodic monitoring is required.

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Class 2B: Describe Method of Ventilation:

BROOKHAVEN
NATIONAL LABORATORY

C-A CONFINED SPACE ENTRY CERTIFICATION

Location: PHENIX SOUTH MUON MAGNET		Date: 8/4/04
Building: 1008	Area/Location/Room: IR	
	Classification from C-A Inventory List: N/A	
Supervisor/Designee: SAL MARINO		Life #: 15767

PRE-ENTRY QUESTIONS

For each item, check "yes" or "no": If no, consult Supervisor	N/A	YES
Is entry essential to perform work?	☐	☑
Have all employees been trained in confined space entry?	☐	☑
Are conditions safe to remove utility-hole cover?	☑	☐
Has opening been guarded?	☑	☐
Is monitoring equipment calibrated?	☑	☐
Has monitoring been performed and recorded below?*	☑	☐
Is GFCI used, if outside or in wet conditions?	☑	☐
Is ventilation blown into bottom of space? (If required)	☑	☐
Are employees instructed to evacuate upon hazard detection?	☐	☑
Have all workers reviewed these entry requirements?	☐	☑
Radiation: If present, RWP may be required – review work with ESH Coordinator and/or RCD personnel. Evaluate hazards and controls.	☑ ☐ **Reviewed**	

SPACE CLASSIFICATION QUESTIONS

For each item, check box only if "yes"	Class 2A	Class 2B	Class 2C
Engulfment Hazard Present			☐
Entrapment Hazard Present			☐
Electrical Systems:			
• Deenergized	☑		
• Energized and Working Hot			☐
• Energized, but Guarded or not Working Hot	☐		
Mechanical Systems:			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Other Energized Systems: (e.g. steam, sewage)			
• Deenergized	☐		
• Energized and Working Hot			☐
• Energized but Guarded or not Working Hot	☐		
Chemical Hazards inherent in space, based upon monitoring, but Controllable by ventilating		☐	
Chemical Hazards inherent in space, based upon monitoring, but not controllable by ventilating			☐
Chemical Sources, introduced into space? (e.g. welding fumes, solvents)			☐
High Temperature/Pressure Hazard? (other than steam utility-holes)			☐

- If ANY box in column 2C is checked, a Confined Space Permit IS required.
- If any box in column 2B is checked, and none in column 2C, a Confined Space Permit IS NOT required BUT continuous monitoring and ventilating ARE required.
- If only boxes in column 2A are checked, no additional requirements apply.

Classification evaluation

CLASSIFICATION	
CLASS: 2A	I have completed the front and back of this Confined Space Entry Certification form and classified this space. If the confined space is classified as a 2C, I will obtain a Confined Space entry permit from the ESH Coordinator. If the space is Class 2B, continuous monitoring and ventilation is required and will be documented on this form.
	Supervisor/Designee: × Sal Marino — Life #: 15767 — Date: 8/4/04

C-A CONFINED SPACE ENTRY CERTIFICATION

Meter:	Serial #	Calibration Date:
Day of Use Sensor Check ☐ Yes ☐ No N/A See WP# SS2004-133		
Tested By:		BNL#:

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Pre-Entry **Certification test**	N/A See WP# SS2004-133				
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Supplemental sampling record

CLASS 2B CONFINED SPACE ENTRY CERTIFICATION

For Class2B spaces, Hourly or Periodic monitoring is required.

MONITORING RESULTS

Tested By:		BNL Number:			
Date/ Time	Oxygen % (% O2)	Flammable Gas (% LEL)	Carbon Monoxide (CO ppm)	Hydrogen Sulfide (H2S ppm)	Other:
Acceptable Reading	19.5 – 23.5 %	< 10 % of LEL	< 25 ppm	< 10 ppm	

Class 2B: Describe Method of Ventilation:

Muon Magnet Confined Space Entry certification Sheet.

The undersigned certify that they have taken the BNL Confined Space Training within the last twelve months, and understand the hazards involved in working inside the south and north muon magnets (MMS and MMN).

DATE	SIGNATURE	LIFE/GUEST #
8/4/04		U8234